MIKROTIK PROJECT

Company name: OUR BANK LTD   (CLIENT A)

ISP Internet Connectivity Using PPPoE Tunnels

Security & Access Control
Admin Security: Default credentials updated with a secure administrative password.
                                                                        (Pass is :123)
Interface Binding: Assigned IP 192.168.1.100/24 to the primary gateway interface (ether1).

Network Routing & Gateway
Default Route: Configured static route to Gateway 192.168.1.1 to enable external traffic flow.
DNS Resolution: Configured Google Public DNS (8.8.8.8) for reliable domain name translation.

Connectivity Status
Internet Reachability: Successfully established. Verification: WAN Ping and ICMP tests verified with 0% packet loss

WAN IP 192.168.1.100
Gateway 192.168.1.1
Internet Access ONLINE

PPPoE Service Implementation (Client Side)

- Service Creation: Launched a PPPoE service named "client a".

- Interface Binding: The service is broadcasted via ether2, designating it as the client-facing port.

- Authentication Protocols: Enabled multi-layer authentication including mschap2, mschap1, chap, and pap for maximum client compatibility.

- Authentication Security: The PAP (Password Authentication Protocol) has been disabled. This ensures that passwords are not transmitted in plain text, forcing the use of more secure, encrypted methods like MS-CHAP.

- Session Management: Enabled the "One Session Per Host" policy. This restricts each user account to a single active connection at a time, preventing unauthorized account sharing or duplicate login attempts.

- Default Encryption: Enabled to secure the data tunnel and protect client traffic from interceptio

IP Pool Management

- A dedicated address resource has been created for the client network:

- Pool Name: client 200mbps.

- Address Range: 10.0.1.2 to 10.0.1.254.

- Total Capacity: 253 available IP addresses for dynamic assignment to PPPoE clients.

PPPoE User Profile Configuration

- A specialized user profile has been created to define the network environment for high-speed clients:

- Profile Name: "client 200mbps".

- Local Address: The router's local gateway for this profile is set to 10.0.0.1.

- Remote Address: Linked to the "client 200mbps" IP pool for dynamic client assignment.

- DNS Configuration: Hardcoded Google Public DNS (8.8.8.8 and 8.8.4.4) into the profile to ensure reliable web browsing for all connected clients.

PPPoE Secret Configuration

- Name: Set to client 200mbps.

- Password: 123

- Service: Locked to pppoe.

- Profile: Assigned to the client 200mbps profile.

Traffic Management Bandwidth Management (Queue Types)

- **Upload Configuration:**
- Type Name client 200mbps upload.
- Kind: pcq.
- Rate: Limited to 10m (10 Mbps) per user.
- Classifier: Set to "Src. Address" to identify individual uploading users.

- <mark>Download Configuration:</mark>
- Type Name: client 200mbps download.
- Kind: pcq.
- Rate: Limited to 10m (10 Mbps) per user.
- Classifier: Set to "Dst. Address" to identify individual downloading users.

LAN Interface Configuration

A dedicated gateway has been established for the local network:

- **IP Address**: Assigned **10.0.4.1/24**.
- **Interface**: Configured on **ether2** to serve as the local gateway for connected clients.

Firewall & NAT Implementation

To enable internet access for local users, a Network Address Translation (NAT) rule was deployed:

- **Chain**: Set to **srcnat** (Source NAT).
- **Source Address**: Targetted at the client subnet **10.0.1.0/24**.
- **Action**: Set to **masquerade**.
- **Purpose**: This allows private client IPs to be translated into the public/WAN IP, enabling full internet browsing capabilities.

Connectivity Verification (Reference: Attachment_Ping_Tests)

- **Live Session**: Successfully verified a live PPPoE connection for user **"client 200mbps"** with IP **10.0.1.254**.
- **Ping Test Documentation**: Detailed network reachability tests have been recorded in a **separate verification file**.
- **Test Results Summary**:
    - **Internal Ping**: Successful ICMP response from the local gateway 10.0.4.1.
    - **External Ping**: Confirmed stable connection to Google DNS (8.8.8.8) with **0% packet loss**

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